Propane Frequently Asked Questions

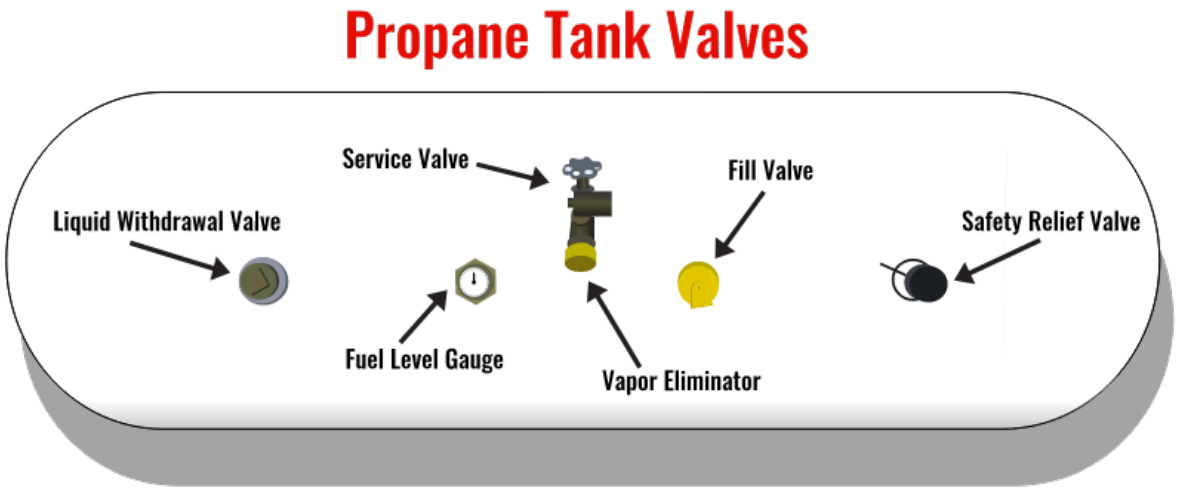
If you're like me, you didn't care about the chemistry behind propane, you just wanted to grill some burgers. That was until your tank started freezing up and sucking your wallet dry. We're here to help unveil your mysterious propane tank and put money back in your pocket.

What is Propane?

Propane, a clean-burning fuel, is an economical source of energy. Also called liquefied petroleum gas (LP or LPG), propane is a part of the hydrocarbon gas family, along with others like butane and methane ("wasn't me!"). This means propane occurs as a natural gas and can be bottled, making it convenient to transfer with the right safety precautions. Many homes, cabins, RVs, and even tiny houses use propane as their primary source of energy.

Are Propane Heaters Safe?

The answer is yes! When used correctly, propane is one of the safest sources of energy out there. Understanding the nature of propane, the necessary safety precautions, and the different functions of the valves on your tank will help you feel more comfortable using it (See figure below).



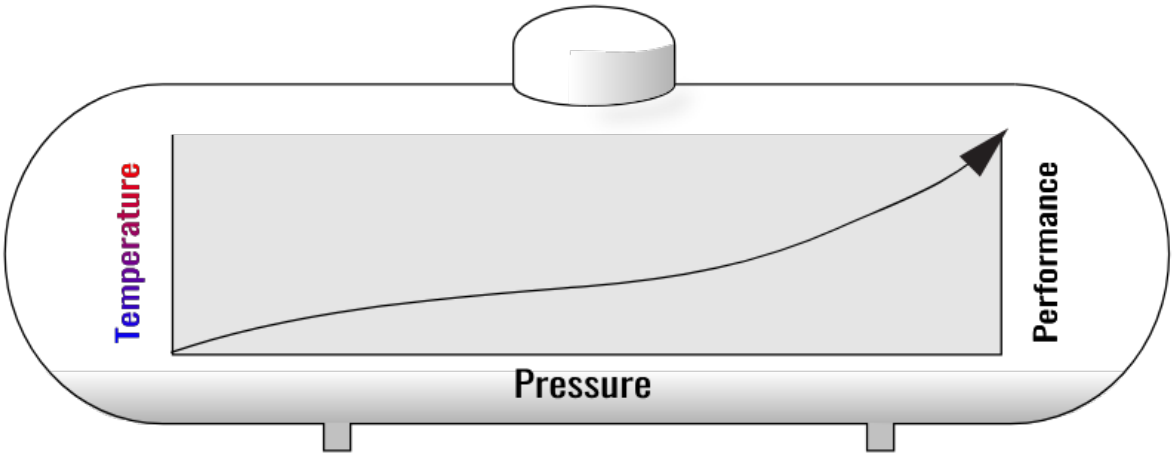
Like your ex, propane is so cold, it acts hot. Since propane functions at temperatures much lower than most natural environments, it can cause freeze burns on your skin if it makes sustained contact. For this reason you should always wear protective gloves if you are dealing with your tank or valves, and wear protective eyewear if possible. Propane is flammable, so never have an open flame around your tank. If you are interested in heating your tank, there are certified propane tank heaters that can help.

One thing to be aware of is that manufacturers add a rotten egg or skunk smell to propane–which is naturally odorless–in order to alert users if there is a leak. Since it is possible to have a leak so small you can't smell it, you should definitely install carbon monoxide detectors in your home. Many fire alarms have CO detectors already built into them.

If you do start to smell something ripe and it's not your dog or spouse, extinguish all flames, turn off the supply valve on your tank (if it's safe), and leave the premises as soon as possible. Contact your supplier or a professional for assistance. If they are unavailable, call the police. Don't try to handle propane on your own if you haven't been trained professionally. Grab lunch and check out the new Marvel movie while things get cleared up!

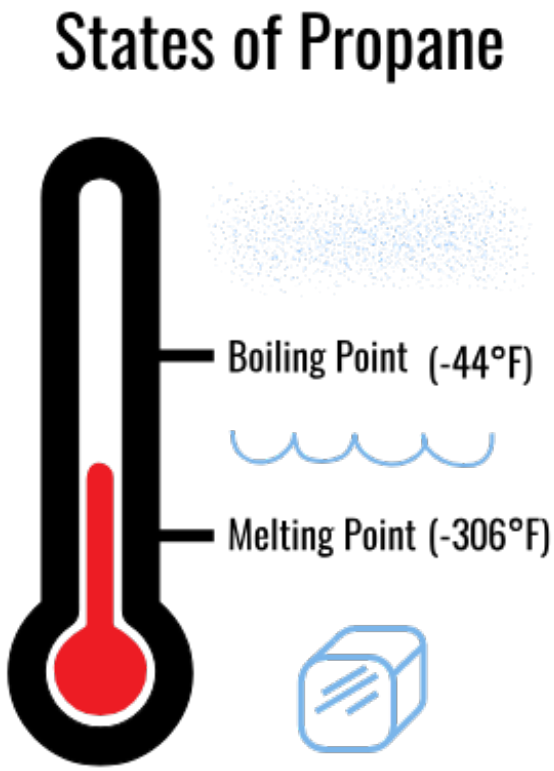
Can Propane Freeze in Cold Weather? Propane Liquid Temperature

Just like how water boils into steam, liquid propane also boils into a gas. However, compared to water, the point where propane boils is much lower: it boils at -44 degrees Fahrenheit! When temperatures are below -44°F, propane gas condenses back into a liquid. Additionally, temperature change is tied to pressure change inside a propane tank: as temperatures increase, pressure inside propane tanks also increases. Thus the liquid propane expands as a gas. Decreased pressure also causes propane to condense back into a liquid. The colder the weather and lower the temperatures, the more dense and liquified propane becomes. This liquid state is inefficient: propane needs to be vaporized to pass through your supply lines!



Why is My Propane Tank Frosting Over? Can Propane Freeze in Cold Weather?

Many people are confused by the freezing point of propane because tanks will stop functioning in cold temperatures or start frosting over. Propane's melting point is -306.4 °F (-188 °C): below this point and propane will freeze into a solid. That is pretty bleeping cold. This means that, unless you're in a research laboratory, liquid propane won't freeze in any natural environment. It is, however, important to be aware that as propane vaporizes into a usable gas form, the temperature of the liquid left in the tank drops. If the heat of the weather outside is high, this will keep the pressure in your



tank high and you'll be good to go. But if temperatures outside are too low to keep pace with the cooling that is occurring inside the tank, frost will begin to form on the outside of the tank. This isn't because the propane itself is freezing, but because its temperature is dropping below the temperature at which the water vapor outside freezes. This frost acts as insulation and resists any further heat from helping the situation. Frost can also form if there is a leak around your valves or lines, or if it is a particularly humid day.

How to Keep a Propane Tank from Freezing Up

Propane has a boiling point of -44°F, which means that in most normal climates propane is in a gaseous form. Like we mentioned before, this is important for the gas to be able to pass through the supply lines. As temperatures get colder and approach -44°F, propane gets denser and is less likely to perform at its maximum capacity. This, and the aforementioned frost that can develop on tanks, require some sort of insulation or heating. Without this, the life of the propane tank will shorten significantly, leading to pricey refills, exchanges, or even emergency visits from your propane distributor (accompanied by steep fees).